

2018 FLYSET FTC Workshop - Garchomp

(9/3/2018)



Iron Reign - Janavi and Kenna

Janavi is a 12th grader at the Science and Engineering Magnet and is also known as the team “cheerleader”

Kenna is a 12th grader at the Science and Engineering Magnet and is the team builder



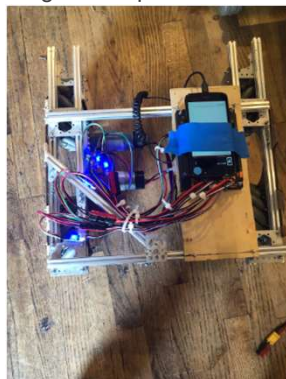


Chassis Specification

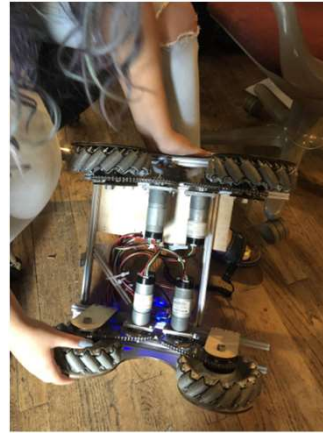


Garchomp

Weight is 16 pounds



Garchomp




Garchomp



- Rev Rail chassis
- Four NeveRest 40 motors
- Four wheel independent chain drive
- Gear ratio from motor to wheel: 1:1
- 6" Mecanum wheels
- REV expansion hub
- 16 lbs





 **GARCHOMP Build Notes**

- Aligning gears and sprockets
- Re-mounting chains constantly
- Likely due to flexible fiberboard side walls vs. aluminum on Kraken



Test 1: Forward Speed Test

- Issues going in straight line
- Had to misalign initially

	No load	5 lb load	10 lb load
Distance traveled	6.25 m	5.12m	3.70 m



Test 2: Three Second Turn Test

- No load
 - Could not keep attached
- Fairly consistent results

	Trial 1	Trial 2	Trial 3
Degree turned	575.9	564.2	579.7



Test 3: Driving up/down a ramp

- No load
 - No effective way to constrain load without harming chassis

	Trial 1	Trial 2	Trial 3
Up ramp	yes	yes	yes
Down ramp	yes	yes	yes



Test 4: Balance Stone Balancing Ability

- No deviations from test protocol
- Balancing easier than Kraken
 - Lower center of gravity
 - Less mass, less momentum; makes easier to stop

	Trial 1	Trial 2	Trial 3
Go on the stone?	yes	yes	yes
How long on the stone? (forever is settled on the stone)	forever	forever	forever



Test 5: Pull Strength Test

- No deviations from test protocol

	Trial 1	Trial 2	Trial 3
10 lb pull weight	1.24 m/s	1.21 m/s	1.13 m/s
5 lb pull weight	1.55 m/s	1.52 m/s	1.57 m/s
0 lb pull weight	1.67 m/s	1.71 m/s	1.72 m/s



Garchomp Summary

- Similar chassis build to Kraken
- Large 6" mecanum allows for increased mobility and better ability to mount obstacles
 - cost of greater weight and shorter wheelbase than 4" mecanum
- Lighter weight vs Kraken did reduce traction on pull tests - wheel slip

